1: Biochem Biophys Res Commun 1996 Aug 14;225(2):632-8

Slim defines a novel family of LIM-proteins expressed in skeletal muscle.

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We have assembled the complete protein sequence of the skeletal muscle LIM-protein SLIM by aligning overlapping cDNA sequences. These cDNA sequences were identified from our own sequencing and from BLASTn searches of non-redundant cDNA databases. The predicted SLIM protein sequence included four LIM-domains and a novel single zinc finger domain located in the N-terminal region. Similar sequences to SLIM were identified and termed SLIM2 and SLIM3. The SLIM3 cDNA sequence was identified subsequently as a partial sequence of the of the LIM-protein DRAL. The number and spacing of the LIM domains was common to all three protein sequences. The mRNA for each protein was detected in human masseter muscle RNA by Northern analysis. We suggest that these proteins belong to a novel family of LIM proteins that are expressed in human skeletal muscle.

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The LIM proteins FHL1 and FHL3 are expressed differently in skeletal muscle.

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We have determined the complete mRNA sequence of FHL3 (formerly SLIM2). We have confirmed that it is a member of the family of LIM proteins that share a similar secondary protein structure, renamed as Four-and-a-Half-LIM domain (or FHL) proteins in accordance with this structure. The "half-LIM" domain is a single zinc finger domain that may represent a subfamily of LIM domains and defines this particular family of LIM proteins. The distribution of FHL mRNA expression within a variety of murine tissues is complex. Both FHL1 and FHL3 were expressed in a number of skeletal muscles while FHL2 was expressed at high levels in cardiac muscle. Localisation of FHL3 to human chromosome 1 placed this gene in the proximity of, but not overlapping with, alleles associated with muscle diseases. FHL1 and FHL3 mRNAs were reciprocally expressed in the murine C2C12 skeletal muscle cell line and this suggested that the pattern of expression was linked to key events in myogenesis. Copyright 1999 Academic Press.

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